

REMARKS

Claims 5, 10, 15 and 20-28 are pending. By this Amendment, claims 5, 10, 15 and 20 are amended, claims 2-4, 7-9, 12-14 and 17-19 are canceled, and new claims 21-28 are added. Claims 1, 6, 11 and 16 were previously canceled.

Entry of the amendments is proper under 37 CFR §1.116 since the amendments:

(a) place the application in condition for allowance for the reasons discussed herein; (b) do not raise any new issue requiring further search and/or consideration since the amendments amplify issues previously discussed throughout prosecution; (c) satisfy a requirement of form asserted in the previous Office Action; (d) do not present any additional claims without canceling a corresponding number of finally rejected claims; and (e) place the application in better form for appeal, should an appeal be necessary. The amendments are necessary and were not earlier presented because they are made in response to arguments raised in the final rejection. Entry of the amendments is thus respectfully requested.

I. Request for Acknowledgment of Receipt of Priority Documents

The Office Action has not acknowledged the Priority Documents of Japanese Patent No. 2000-237365, filed August 4, 2000 and Japanese Patent No. 2001-213544 filed July 13, 2001. These Priority Documents were submitted on November 5, 2001. Accordingly, please acknowledge receipt of the Priority Documents to indicate that the requirements of 35 U.S.C. §119 has been satisfied.

II. The Claims Define Patentable Subject Matter

The Office Action rejects claims 2-5, 7-10, 12-15 and 17-20 under 35 U.S.C. §103(a) over Nakamoto (U.S. Patent No. 5,936,810) in view of Gill (U.S. Patent No. 6,538,859). The rejection is respectfully traversed.

In particular, neither Nakamoto nor Gill, individually or in combination, disclose or suggest a magnetoresistive device including: (A) a total length of regions of the two

electrode layers that are laid over the one of the surfaces of the magnetoresistive element is smaller than 0.3 μm ; and (B) a space between the two electrode layers is equal to or smaller than approximately 0.6 μm , to recited independent claim 5, and similarly recited in independent claims 10, 15 and 20.

The significance of the above-noted features are disclosed in the written description. For example, feature A allows a magnetoresistive device or thin-film magnetic head to have improved sensitivity, output and output stability, and allows the effective track width to be determined with precision (see generally, pages 22-27 of the application).

For example, feature B serves to reduce Barkhausen noise remarkably, as shown in Fig. 16 (see also generally, pages 30-32 of the application). Thus, feature B enhances the effect of improving the output stability of the magnetoresistive device or thin-film magnetic head in conjunction with the above described effects obtained by feature A.

Nakamoto in Figs. 7 and 14 discloses output values for a range of overlap from 0.0 to 1.5 μm . However, as disclosed in col. 9, lines 63-65, and col. 13, lines 18-19, the values given in Figs. 7 and 14 are obtained when the electrode spacing is 1.0 μm . Therefore, Nakamoto does not disclose or suggest a total length of regions of the two electrode layers that are laid over the one of the surface of the magnetoresistive element is smaller than the 0.3 μm and a spacing between the two electrode layers is equal to or smaller than approximately 0.6 μm .

Nakamoto discloses in Figs. 5 and 16 values of output/electrode spacings ratio that includes the case where the electrode spacing is 0.5 μm . However, as disclosed in col. 9, lines 23-28, and col. 14, lines 21-25, the values given in Figs. 5 and 16 are obtained when the overlap amount of one of the electrodes is 0.5 μm . Therefore, Nakamoto does not disclose or

suggest a total length of regions of the two electrode layers that are laid over the one of the surfaces of the magnetoresistive element is smaller than 0.3 μm .

Gill does not make up for the above-noted deficiency of Nakamoto. Gill discloses in Fig. 6, a spin valve (SV) sensor 600 having an antiferromagnetic layer 620 deposited over a third sublayer 612 to the thickness at which the desired exchanged properties are achieved. A laminated antiparallel (AP) pinned layer 622 is formed on the antiferromagnetic layer 620 in the central region 606. The AP pinned layer 622 comprises a first ferromagnetic layer FM1 624, a second ferromagnetic layer FM2 628, and an antiparallel coupling (APC) layer 626 disposed between the FM1 layer 624 and the FM2 layer 628.

However, Gill does not disclose or suggest a total length of regions of the two electrode layers that are laid over the one of the surfaces of the magnetoresistive element is smaller than 0.3 μm and a space between the two electrode layers is equal to or smaller than approximately 0.6 μm .

Accordingly, independent claims 5, 10, 15 and 20 define patentable subject matter. Claims 21-28 depend from the respective independent claims, and therefore also define patentable subject matter. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested.

III. Conclusion

In view of the foregoing amendments and remarks, this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 5, 10, 15 and 20-28 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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